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Final Project Based Learning Activity

**Scenario:**

There are many different brands of paper towels for consumers to choose from when at the store. The task can be somewhat daunting. How can a consumer tell whether they are really getting the best paper towels for the job? With the introduction of green technology into the market, the number of options and the complexity of the choice has increased.

In an effort to help consumers make informed decisions, Consumer Reports has hired your team to evaluate the various paper towel products available. In particular, they think information about the absorbency and strength of the paper towels will be helpful to consumers.

Your team’s task is to come up with a test or series of tests to determine which paper towels should be recommended to consumers. Then, prepare a presentation for Consumer Reports to communicate what methods you used, what data you collected, your recommendation, and the reasoning behind your recommendation.

**TPACK Lesson Plan:**

* Iowa Common Core Standards - Middle School, Science as Inquiry
  + Design and conduct different kinds of scientific investigations
  + Select and use appropriate tools and techniques to gather, analyze, and interpret data
  + Use evidence to develop descriptions, explanations, predictions, and models
  + Communicate and defend procedures and explanations
* Practical pedagogical decisions
  + More student centered
  + Convergent and divergent
  + Fewer prior experiences
  + Laying the groundwork for a deep understanding
  + Short duration plan, though spiraling back to many of the ideas should be planned in the long term
  + Fairly structured with some unstructured elements
  + Small group
  + Few additional resources required
* Activity types
  + Attend to presentation by peers using presentation software
  + Discuss methods, ideas, and rationale with peers
  + Select procedures and accompanying instruments such as a digital balance
  + Organize/classify, record, and analyze data using a spread sheet
  + Measure using a digital balance and other appropriate devices
  + Carry out procedures
  + Generate data using appropriate equipment
* Assessment strategies
  + Gauge students’ understanding through their responses to thought-provoking, open-ended questions
  + Presentations would be assessed according to a rubric including how students respond to questions from the teacher and peers
* Resources/Tools
  + Laptops and/or computer lab
  + Digital scales
  + Presentation software
  + Spreadsheet software
  + Materials that students may need (this is not an exhaustive list)
    - Various paper towels including at least one green brand
    - Washers or other weights
    - Graduated cylinders (preferably plastic)
    - Containers for weighing liquids

The paper towel activity is very popular but may often be implemented in a cookbook fashion where students simply follow the procedure given to them by the teacher. In this version of the activity, students will collaborate to design and conduct their own investigations. This requires the teacher to be flexible about the procedures students may perform and the materials they may use but it has great value as an inquiry experience. I would use this activity early in the year to get students accustomed to the kinds of activities that we will be performing without being burdened by a great deal of content. This is also a relatively safe activity making it a good one for early in the year. Students’ attention will be overtly drawn to aspects of their investigations and to how these aspects relate to the nature of science as it is actually practiced. Students will also begin to develop important science process skills that they will continue to utilize throughout the year.